

Amendments to the claims

1 (Currently amended): A measurement system, comprising:

a machine tool stage having a first piece and a second piece, wherein at least one of said first piece and said second piece are movable with respect to one another;
a digital scale integrated in said first piece;
a detector integrated in said second piece at a position suitable to detect movement with respect to said digital scale and create a signal based upon relative movement between said digital scale and said detector; and
a display integrated in said second piece and suitable to receive said signal from said detector and display a reading of said relative movement.

2 (Original). The measurement system of claim 1, wherein said stage is a linear translation stage.

3 (Currently amended). The measurement system of claim 1, wherein said stage is a member of the set consisting of rotary stages, ~~gimbal mounts~~, and goniometers.

4 (Currently amended). The measurement system of claim 1, ~~wherein said stage is one of further comprising~~ a plurality of said stages and at least two said stages include a same said first piece and share a same said digital scale.

5 (Currently amended). The measurement system of claim 1, ~~wherein said stage is one of further comprising~~ a plurality of said stages wherein respective said first pieces are collectively movable with respect to respective said second pieces along a single axis or multiple axes.

6 (Currently amended). The measurement system of claim 5, wherein said second pieces of said plurality of said stages each include a respective said detector and said display, thereby permitting measurement and display independently on each said stage.

7 (Original). The measurement system of claim 1, wherein said digital scale is in tape or disk form factor.

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8 (Original). The measurement system of claim 1, wherein said stage moves linearly and said digital scale is in tape form factor and is mounted on a surface of said first piece along the axis of said relative movement.

9 (Original). The measurement system of claim 1, wherein said first piece moves rotationally and said digital scale is in tape form factor and is mounted on a surface of said first piece along a rotational arc of said relative movement.

10 (Canceled).

11 (Original). The measurement system of claim 1, wherein said first piece moves rotationally and said digital scale is in disc form factor and is mounted co-axial with a rotational axis of said relative movement.

12 (Original). The measurement system of claim 1, wherein said digital scale has a characteristic detectable by said detector that is a member of the set consisting of magnetic, holographic, inductive, capacitive, optical hole patterns, and optical line patterns.

13 (Original). The measurement system of claim 1, wherein said detector tailors the signal using a member of the set consisting of filtration and amplification.

14 (Original). The measurement system of claim 1, wherein said detector converts said signal into a digital accumulative number of counts.

15 (Original). The translation measurement system of claim 1, wherein said display provides at least one function that is a member of the set consisting of position reset, position preset, position difference between a reference position and a measured position, and conversion between units of measurement.

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16 (Original). The translation measurement system of claim 1, wherein:

- said signal is a raw signal;
- said display converts said raw signal to at least one display value and displays said display value; and
- said display includes a port to communicate a result signal based on a said display value to a computerized outside system.

17 (Original). The translation measurement system of claim 1, further comprising a microprocessor that processes said signal from said detector before said display displays said reading.

18 (Original). The translation measurement system of claim 1, further comprising a power source for powering at least one of said detector and said display.

19 (Currently amended): A measurement method, comprising the steps of:

- (a) moving a least one of a first piece of a machine tool stage and a second piece of a said machine tool stage with respect to one another;
- (b) detecting movement of a digital scale integrated in said first piece with a detector integrated in said second piece, thereby detecting relative movement between said digital scale and said detector;
- (c) creating a signal based upon said relative movement;
- (d) communicating said signal to a display integrated in said second piece; and
- (e) displaying a reading of said relative movement on said display.

20 (Currently amended): A measurement system, comprising:

- means for moving a least one of a first piece of a stage and a second piece of a said machine tool stage with respect to one another;
- means for detecting movement of a digital scale means integrated in said first piece with a detector means integrated in said second piece, thereby detecting relative movement between said digital scale means and said detector means;

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means for creating a signal based upon said relative movement;

means for communicating said signal to a display means integrated in said second piece;

and

means for displaying a reading of said relative movement on said display means.